



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,764	10/30/2003	Giovanni Paoli	Q78024	6910
23373	7590	11/13/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			TARANINA, MARINA Y	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

57

<b>Office Action Summary</b>	<b>Application No.</b> 10/695,764	<b>Applicant(s)</b> PAOLI ET AL.	
	<b>Examiner</b> Marina Taranina	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 30 oct 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>30 Oct 2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-8 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claim 1 recites the limitation "it" in line 3. There is insufficient antecedent basis for this limitation in the claim.

(2) Regarding claim 6, the phrase "preferably **around** 90%" in line 3 renders the claim indefinite because of the indefinite meaning of the word "around".

(3) Claim 7 recites the limitation "it" in line 1. There is insufficient antecedent basis for this limitation in the claim.

(4) Regarding claim 13, the phrase "preferably **around** 90%" in line 3 renders the claim indefinite because of the indefinite meaning of the word "around".

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 8, 9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Durant (EP 1 091 496 – see IDS dated 30 Oct 2003).

(1) With respect to Claim 1, Durant discloses a receiver for an optics telecommunication system, the receiver comprising a first receiving device (301 in fig. 3, col. 5 line 26-27) and means for focusing (305 in fig. 3, col. 5 lines 29-31) a received light beam carrying a signal towards the first receiving device (col. 5 lines 35-37), characterized in that it further comprises at least a second receiving device (303 in fig. 3, col. 5 lines 45-47) and a beam splitter (302 in fig. 3, col. 5 lines 45-47) for splitting the focused light beam partially towards the first receiving device (301 in fig. 3, col. 5 lines 35-37) and partially towards the at least second receiving device (303 in fig. 3, col. 5 lines 45-47).

(2) With respect to Claim 8, Durant discloses the receiver according to claim 1, characterized in that the optics telecommunication system is a Free Space Optics telecommunication system (col. 5 lines 29-31).

(3) With respect to Claim 9, Durant discloses a method for providing high dynamic features in an Optics receiver, the receiver comprising a first receiving device (301 in fig. 3, col. 5 line 26-27) and means for focusing (305 in fig. 3, col. 5 lines 29-31) a received light beam carrying a signal towards the first receiving device (col. 5 lines 35-37), characterized by the steps of providing at least a second receiving device (303 in fig. 3, col. 5 lines 45-47) and splitting the focused light beam partially towards the first receiving device (301 in fig. 3, col. 5 lines 35-37) and partially towards the at least second receiving device (303 in fig. 3, col. 5 lines 45-47).

(4) With respect to Claim 15, Durant discloses the method according to claim 9, characterized in that the optics telecommunication system is a Free Space Optics telecommunication system (col. 5 lines 29-31).

5. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Bell (US 5 491 548).

(1) With respect to Claim 1, Bell discloses a receiver for an optics telecommunication system, the receiver comprising a first receiving device (258 in fig. 5, col. 14 lines 38-41) and means for focusing (by coupling and routing via 242 and 244 in fig. 5) a received light beam carrying a signal (output of lasers 238 and 240 in fig. 5, col. 13 lines 21-24) towards the first receiving device (col. 13 lines 31-34, col. 14 lines 6-10), characterized in that it further comprises at least a second receiving device (256 in fig. 5, col. 14 lines 36-38) and a beam splitter (252 in fig. 5, col. 14 lines 6-10) for splitting the focused light beam partially towards the first receiving device and partially towards the at least second receiving device (col. 14 lines 29-36, col. 15 lines 30-35).

(2) With respect to Claim 2, Bell discloses the receiver according to claim 1, characterized in that the beam splitter (252 in fig. 5) provides an asymmetric ratio in order to send different portions of the received signal power to the first and to the at least second receiving device (col. 14 lines 11-14, col. 15 lines 30-35).

(3) With respect to Claim 3, Bell discloses the receiver according to claim 1, characterized in that the first receiver device comprises an APD diode (258 in fig. 5, col. 14 lines 38-41).

(4) With respect to Claim 4, Bell discloses the receiver according to claim 1, characterized in that the at least second receiver device comprises a PIN diode (256 in fig. 5, col. 14 lines 36-38).

(5) With respect to Claim 5, Bell discloses the receiver according to claim 2, characterized in that the largest portion of the received signal (second optical signal, col. 15 lines 42-45) is provided to the first receiving device (258 in fig. 5, being part of channel 262).

(6) With respect to Claim 6, Bell discloses the receiver according to claim 5, characterized in that the portion of the received signal (second optical signal, col. 15 lines 42-45) which is provided to the first receiving device (258 in fig. 5) is between 85-98%, preferably around 90%, of the whole received power (col. 15 lines 30-35, col. 14 lines 25-28).

(7) With respect to Claim 9, Bell discloses a method for providing high dynamic features in an Optics receiver, the receiver comprising a first receiving device (258 in fig. 5, col. 14 lines 38-41) and means for focusing (by coupling and routing via 242 and 244 in fig. 5) a received light beam carrying a signal towards the first receiving device (col. 13 lines 31-34, col. 14 lines 6-10), characterized by the steps of providing at least a second receiving device (256 in fig. 5, col. 14 lines 36-38) and splitting (252 in fig. 5, col. 14 lines 6-10) the focused light beam partially towards the first receiving device

and partially towards the at least second receiving device (col. 14 lines 29-36, col. 15 lines 30-35).

(8) With respect to Claim 10, Bell discloses the method according to claim 9, characterized in that the step of beam splitting comprises the step of beam splitting according to an asymmetric ratio in order to send different portions of the received signal power to the first (258 in fig. 5, being part of channel 262) and to the at least second (256 in fig. 5, being part of channel 260) receiving device (col. 15 lines 30-35, 40-45).

(9) With respect to Claim 11, Bell discloses the method according to claim 9, characterized in that the first receiver device comprises an APD diode (258 in fig. 5, col. 14 lines 38-41) and at least one second receiver device comprises a PIN diode (256 in fig. 5, col. 14 lines 36-38).

(10) With respect to Claim 12, Bell discloses the method according to claim 9, characterized in that the step of beam splitting comprises providing the largest portion of the received signal (second optical signal, col. 15 lines 42-45) to the first receiving device (258 in fig. 5, being part of channel 262).

(11) With respect to Claim 13, Bell discloses the method according to claim 12, characterized in that the portion of the received signal (second optical signal, col. 15 lines 42-45) which is provided to the first receiving device (258 in fig. 5) is between 85-98%, preferably around 90%, of the whole received power (col. 15 lines 30-35, col. 14 lines 25-28).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bell (US 5 491 548) in view of Okuyama (US 5 825 821).

With respect to Claim 7, Bell discloses the receiver according to claim 1, characterized in that it further comprises a switch block (270 as a part of 234 in fig. 5, col. 14 lines 51-54) in turn comprising a switch logic block (278, 276 and 280 in fig. 5) respondent to input power information (voltage signals) from the first (258 in fig. 5, being a part of channel 262) and the at least second (256 in fig. 5, being a part of channel 260) receiving devices (col. 14 lines 54-61), the switch logic block (278, 276 and 280 in fig. 5) driving a switch (270 in fig. 5) selecting a signal (by selectively coupling) between the signal from the first receiving device and the signal from the at least second receiving device (col. 14 lines 51-54).

Bell does not teach that (A) the switch is hitless, and (B) the switch logic is respondent to phase information from a phase comparator.

However, Okuyama discloses (A) a hitless switching device (106 in fig. 3), wherein (B) the switch logic (switching operation explained in fig. 4) is respondent to



phase information from a phase comparator (204, 205, 209, 208 and 211 in fig. 3, col. 5 lines 22-26, 41-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a hitless switching device wherein the switch logic is respondent to phase information from a phase comparator as taught by Okuyama into the system of Bell as to minimize data loss and therefore, improve transmission characteristics.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bell (US 5 491 548) in view of Shinmyo (US 4 380 814).

With respect to Claim 14, Bell discloses the method according to claim 9, characterized by selecting (col. 14 lines 51-54) a signal between the signal from the first receiving device (258 in fig. 5) and the signal from the at least one second receiving device (256 in fig. 5) according to phase information (correlating in time, col. 17 lines 15-19) and according to signal received power information (voltage signals, col. 14 lines 54-56, col. 17 lines 19-24).

Bell does not teach a phase comparator.

However, Shinmyo teaches a phase comparator for adjusting the phase of the data signals on different channels while switching from one channel to another (103 in fig. 3, abstract, col. 5 lines 31-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a phase comparator as taught by Shinmyo into

the system of Bell as to improve reliability of the system due to switching without interruption.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6 657 714 discloses defect detection with enhanced dynamic range;

US 4 451 916 discloses multi-channel fiber optic communication network having fault isolation system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Taranina whose telephone number is (571) 270-1085. The examiner can normally be reached on Mon-Fri (alternative Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT  
05 Nov 2006

  
**KENNETH VANDERPUYE**  
**SUPERVISORY PATENT EXAMINER**